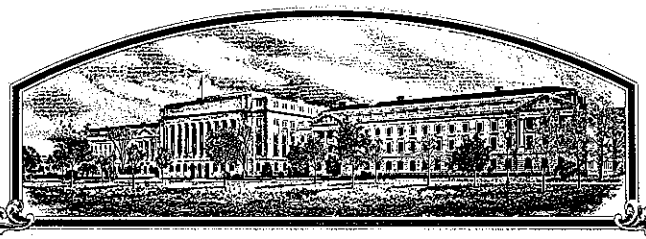

No. 9200162

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT ETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT T. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'2571'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 30th *day of* April *in the year of our Lord one thousand nine hundred and* ninety-three.

Attest:

Kenneth R. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Pioneer Hi-Bred International, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.
WBB441D1

3. VARIETY NAME
'2571' AAA 11/Jan/1993

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*
Dept. of Wheat Breeding
R.R. 1 Box 297A
Windfall, IN 46076

5. PHONE *(Include area code)*
(317) 945-7906

FOR OFFICIAL USE ONLY

PVPO NUMBER
9200162

FILING
Date: April 17, 1992
Time: ☐ A.M. ☑ P.M.

FEES RECEIVED
Filing and Examination Fee: $ 2150.00
Date: April 17, 1992
Certificate Fee: $250.00
Date: April 6, 1993

6. GENUS AND SPECIES NAME
Triticum aestivum

7. FAMILY NAME *(Botanical)*
gramineae

8. CROP KIND NAME *(Common Name)*
Wheat

9. DATE OF DETERMINATION
August 1, 1990

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Iowa

12. DATE OF INCORPORATION
May 1926

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. Gregory C. Marshall
Pioneer Hi-Bred International, Inc.
R.R. 1 Box 297A
Windfall, IN 46076
PHONE *(Include area code)*: (317) 945-7906

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

a. ☑ Exhibit A, Origin and Breeding History of the Variety.
b. ☑ Exhibit B, Novelty Statement.
c. ☑ Exhibit C, Objective Description of Variety.
d. ☑ Exhibit D, Additional Description of Variety.
e. ☑ Exhibit E, Statement of the Basis of Applicant's Ownership.
f. ☑ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 4/16/92
g. ☑ Filing and Examination Fee ($2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)*
☐ YES *(If "YES," answer items 16 and 17 below)* ☑ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES *(If "YES," through* ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____ .)
☑ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," give names of countries and dates)
☑ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
Gregory C. Marshall	Coordinator of Soft Winter Wheat Breeding	4/16/92
SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE

14A. Exhibit A. Origin and Breeding History of Pioneer Wheat Cultivar ~~WBB441D1~~. '2571' AAA 11 Mar 1993

Pioneer cultivar WBB441D1, Triticum aestivum L., em Thell., a soft red winter wheat was developed by Pioneer Hi-Bred International, Inc. from the four parent cross:
'Elmo'/Pioneer line 'W4034H'//Pioneer line 'W9057C'/'Coker 916'

Elmo is a soft red winter wheat germplasm line released by Purdue Univ. Agric. Exp. Station and AR-SEA-USDA. Coker 916 is a soft red winter wheat cultivar developed and released by what was formerly the Coker Seed Company. Pioneer line W4034H was derived from the cross: 'GA 80'/'MO W7510'; experimental lines from Georgia and Missouri, respectively. Pioneer line W9057C was derived from the cross: Pioneer line 'W605'/'IN 5517'. IN 5517 was an experimental line from Indiana. Pioneer line W605 was derived from the cross: 'IN4946-A4-18-2'/MO W7510. IN4946-A4-18-2 was a dwarf experimental from Purdue. The detailed parentage of WBB441D1 is:
Elmo//GA 80/MO W7510/4/IN4946-A4-18-2/MO W7510//IN 5517/3/Coker 916

The two single crosses: Elmo/Pioneer line W4034H (designated 'WCA020') and Pioneer line W9057C/Coker 916 (designated 'WBA805') were made in the spring 1981 greenhouse cycle at the Pioneer soft wheat station in Windfall, IN. The final cross: WCA020/WBA805 was made in the fall 1981 greenhouse cycle, and was coded 'WBB441'. The F1 was transplanted into a field nursery the spring of 1982 at the Windfall, IN station. The seed was harvested in bulk and the F2 generation was planted both in Windfall and Ft. Branch, IN nurseries in the fall of 1982. Individual F2 heads were selected, harvested, threshed,

and the seed ultimately planted the fall of 1983 in 63 F3 headrows at Windfall, IN. Eight heads were harvested from each of three selected F3 headrows. Four F4 headrows were planted for each F3 selection at Ft. Branch and Windfall, IN the fall of 1984. One selected F3 headrow (#E253-64) was the source for an F4 headrow (#BFF69-47) in the Ft. Branch nursery that was chosen for generation advance. During the fall of 1985, seed from eight heads of the selected F4 headrow were planted in a greenhouse in Hutchinson, KS. Two F5 heads tracing to each of the eight heads were harvested, and the resulting seed was used to plant the F6 generation. In the spring of 1986, 4 F6 hill plots were transplanted to a nursery at Windfall, IN for each of the 16 F5 heads harvested. Four hill plots of a selected F6 (entry 956) were harvested in bulk and the seed was used to plant a preliminary yield trial. On entry in the yield test program the fall of 1986, the line was designated WBB441D1. WBB441D1 has been extensively tested for yield, agronomic traits, and milling and baking qualities since 1986.

In the F8 generation, 100 heads were harvested from a small bulk increase and used to plant 100 F9 purification headrows in the fall of 1988. Offtype rows were destroyed and the remaining rows were individually harvested and threshed. The fall of 1989, 200 F10 headrows were planted as purification headrows, within a 0.2 acre bulk increase at Windfall, IN. Offtype headrows were destroyed prior to harvest and each row was harvested separately. The bulk increase was rogued for offtype plants. The seed from the headrows and the bulk increase

constitutes breeder seed and turned over to Pioneer's Parent Seed Department and subsequently used to produce F11 and F12 generation increases. WBB441D1 was designated 'YW502' and 'XW502' after the 1990 and 1991 harvests, respectively. If a decision is made to release WBB441D1 following the 1992 harvest, a commercial code will be assigned for variety name.

WBB441D1 has shown uniformity and stability for all traits described in Exhibit C of this application.

9200162
AAA 11 Mar 1993

PIONEER HI-BRED INTERNATIONAL, INC.
PLANT BREEDING DIVISION

DEPARTMENT OF CEREAL SEED BREEDING
R.R. #1 • BOX 297A
WINDFALL, INDIANA 46076
PHONE (317) 945-7906

PIONEER®

November 30, 1992

COPY

Alan A. Atchley, Plant Variety Examiner
Plant Variety Protection Office, AMS, USDA
NAL Building, Room 500
10301 Baltimore Blvd.
Beltsville, MD 20705-2351

Subject: PVP Application No. 9200160, Wheat variety <WBA963A5>
No. 9200162, Wheat variety <WBB441D1>

Dear Mr. Atchley:

In response to your letter dated November 19, 1992 (copy enclosed), I am providing you with the following information. Please advise me if this information needs to be provided in a different format, or if revisions of the applications need to be resubmitted.

<WBA963A5> has been observed to be stable and uniform since the seventh generation, or the last five generations.

Both wheat varieties <WBA963A5> and <WBB441D1> were bred and selected for disease resistance, plant type, plant height, head type, straw strength, maturity, grain yield, test weight, and milling and baking qualities.

Also note the enclosed copy of a letter I sent to the Commissioner in October, notifying your office of the variety names assigned to these two and another variety. <WBA963A5> and <WBB441D1> have been assigned the variety names '2580' and '2571', respectively. Please advise me of any action I must take to update these variety names on the applications. Thank you for your assistance.

Sincerely,

Gregory C. Marshall

Dr. Gregory C. Marshall
Coordinator of Soft Winter Wheat Breeding

COPY

encl:
gm

5

9200162

14B. Novelty Statement

'2571' AAA 11/Mar 1993

~~WBB441D1~~ is fairly distinctive from other soft red winter wheat varieties, as one might expect from its pedigree. On the average during the growing season, WBB441D1 is most similar in appearance to Pioneer variety 2551, with several distinct differences. The grain yield of WBB441D1 is about 12% greater than 2551 and has about 1.5 lbs/bu better test weight, in 3 years of Elite Yield tests (Table 1). WBB441D1 heads about 3.5 days earlier than 2551 and is about 1 cm shorter in height. The leaf rust resistance of WBB441D1 is slightly superior to that of 2551, and it has superior resistance to the complex of organisms which cause fungal leaf blights. The flag leaf of WBB441D1 is twisted while 2551 does not have a twisted flag leaf. 2551 has a waxy bloom on the flag leaf sheath, while WBB441D1 does not. The shape of the glumes on WBB441D1 are square while 2551 has oblique glumes.

FORM APPROVED: OMB NO. 0581-0055

EXHIBIT C
(Wheat)

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(s)
Pioneer Hi-Bred International, Inc.

ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)
Dept. of Wheat Breeding
R.R. 1 Box 297A
Windfall, IN 46076

FOR OFFICIAL USE ONLY

PVPO NUMBER 9200162

VARIETY NAME OR TEMPORARY DESIGNATION '2571' AAA 11 Mar 1993
~~WBB441D1~~ (temporary des.)

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:

[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

[2] 1 = SPRING 2 = WINTER 3 = OTHER (*Specify*) _____ [1] 1 = SOFT 2 = HARD 3 = OTHER (*Specify*) _____

[2] 1 = WHITE 2 = RED 3 = OTHER (*Specify*) _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

[2][1][9] FIRST FLOWERING [2][2][6] LAST FLOWERING

4. MATURITY (*50% Flowering*):

[0][3] NO. OF DAYS *EARLIER* THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS

[ ][ ] NO. OF DAYS *LATER* THAN ..... [ ] 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=CALDWELL

5. PLANT HEIGHT (*From soil level to top of head*):

[0][9][7] CM. HIGH

[ ][ ] CM. TALLER THAN ..... [ ]

[0][3] CM. SHORTER THAN ..... [7] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS 7=CALDWELL

6. PLANT COLOR AT BOOTING (*See reverse*):

[2] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:

[1] 1 = YELLOW 2 = PURPLE

8. STEM:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[1] Waxy bloom: 1 = ABSENT 2 = PRESENT

[1] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT

[1] Internodes: 1 = HOLLOW 2 = SOLID

[0][4] NO. OF NODES (*Originating from node above ground*)

[2][2] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

[1] Anthocyanin: 1 = ABSENT 2 = PRESENT

[2] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (*Specify*): _____

[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED

[1] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT

[1] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT

[1][1] MM. LEAF WIDTH (*First leaf below flag leaf*)

[2][9] CM. LEAF LENGTH (*First leaf below flag leaf*):

9200162

11. HEAD:

[2] Density: 1 = LAX 2 = DENSE

[1] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER *(Specify)* _____

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[1] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER *(Specify)*: _____

[0][9] CM. LENGTH [1][2] MM. WIDTH

12. GLUMES AT MATURITY:

[2] Length: 1 = SHORT *(CA. 7 mm.)* 2 = MEDIUM *(CA. 8 mm.)* 3 = LONG *(CA. 9 mm.)*

[2] Width: 1 = NARROW *(CA. 3 mm.)* 2 = MEDIUM *(CA. 3.5 mm.)* 3 = WIDE *(CA. 4 mm.)*

[4] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[2] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[1] Cheek: 1 = ROUNDED 2 = ANGULAR

[2] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[4] Phenol reaction *(See instructions)*: 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER *(Specify)* _____

[0][6] MM. LENGTH [0][3] MM. WIDTH [3][1] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[2] STEM RUST *(Races)* 15TNMH ~~15TNMK~~

[2] LEAF RUST *(Races)* _____

[0] STRIPE RUST *(Races)* _____

[0] LOOSE SMUT

[2] POWDERY MILDEW

[0] BUNT

[0] OTHER *(Specify)* _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[0] SAWFLY

[0] APHID *(Bydv.)*

[0] GREEN BUG

[0] CEREAL LEAF BEETLE

[0] OTHER *(Specify)* _____

HESSIAN FLY RACES: [0] GP [0] A [2] B [0] C [1] D [2] E [0] F [0] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	2551	Seed size	2551
Leaf size	2548	Seed shape	2551
Leaf color	2551	Coleoptile elongation	
Leaf carriage	2545	Seedling pigmentation	2550

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. *(See attachment.)*

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

14D. Exhibit D. Additional Description of the Variety.

12571 AAA 11 Mar 1993

Pioneer cultivar ~~WBB441D1~~ is a common soft red winter wheat, Triticum aestivum L., em Thell..

The flowering date of WBB441D1 is about three days earlier than the cultivar 'Caldwell'. When seeded about October 1 at Windfall, IN, WBB441D1, on average, begins flowering May 15 or 219 days after emergence. Flowering is complete about seven days later.

WBB441D1 has averaged 97 cm in height (Table 1), about 3 cm shorter than Caldwell.

The plant color of WBB441D1 at boot stage is green, similar to Pioneer cultivar 2551. Anther color of WBB441D1 is yellow.

Anthocyanin has not been noted in stems, nor has a waxy bloom been noted. Internodes of WBB441D1 are hollow and hairs are absent on the last rachis internode. There are normally 4 internodes above ground and the average distance between the flag leaf and one leaf below is 22 cm.

The auricles of WBB441D1 are free of anthocyanin, but hairs are present.

The flag leaf of WBB441D1 is erect and twisted at booting. The flag leaf minus one averages 11 mm in width and 29 cm in length. A waxy bloom is not present.

Spikes of WBB441D1 are awned, dense, tapering, and white at maturity. Average spike length and width are 9 cm and 12 mm, respectively, although these can vary with plant population and productivity level.

Glumes of WBB441D1 are of medium length and width. The glume shoulder is square with an acuminate beak.

The coleoptile color is white and seedling anthocyanin is absent. Juvenile plant growth is semi-erect.

Kernels of WBB441D1 are red, ovate, and have rounded cheeks. The brush is medium length and is not collared. Kernels average 6 mm in length, 4mm in width, and average 31 grams per thousand. Phenol reaction is brown.

WBB441D1 is resistant to prevalent races of leaf rust (Puccinia recondita f.sp. tritici) and stem rust (Puccinia graminis f.sp. tritici) in the soft red winter wheat region (Table 1). Based on seedling tests with selected leaf and stem rust isolates, WBB441D1 is postulated to possess Lr 2a, 11, and another unidentified Lr gene, as well as Sr 7b, 10, and 17. These tests were performed at the Plant Disease Clinic, University of Minnesota in conjunction with the USDA Cereal Rust Lab. WBB441D1 has exhibited moderate resistance to powdery mildew (Erysiphe graminis f.sp. tritici) in the Corn Belt region of the United States (Table 1). It has shown moderate resistance to wheat soil borne mosaic and wheat spindle streak virus, as well as very good tolerance to the complex of the most common organisms that cause fungal leaf blights (Table 1).

WBB441D1 is resistant to biotypes B and E and susceptible to biotype D of Hessian fly. It is therefore postulated to have the H6 resistance gene. It has not been tested for resistance to biotypes GP, A, C, F, or G. Seedling screening for Hessian

fly resistance was conducted by the Small Grains Insect Pest Resistance Group, Dept. of Entomology, Purdue Univ., West Lafayette, IN.

WBB441D1 has a very good yield record when compared to current soft red winter wheat cultivars (Table 1). Its high yield potential is complemented by good test weight, very good lodging resistance, and strong overall tolerances to the prevalent diseases in the soft red winter wheat region.

The milling and baking properties of WBB441D1 are acceptable and within the range of soft red winter wheat cultivars that are currently available (Table 2).

//

Table 1. Varietal yield performance and agronomic characteristics as recorded in Pioneer Elite Yield Tests during the period 1988-1991.

Year	Variety	Yield	Test weight	Height	Heading date	Lodge	Leaf rust	Leaf blt.	Stem rust	Powd mild	SSMV	SBMV@
		bu/ac	lbs/bu	cm	Jan. 1	1-9¶	1-9¶	1-9¶	1-9¶	1-9¶	1-9¶	1-9¶
1991	**WBB441D1**	**65.6**	**56.0**	**99.8**	**126.3**		**9.0**	**6.5**		**6.7**	**4.0**	**5.5**
	2548	65.4	56.7	96.5	127.8		6.0	6.0		6.7	5.0	2.0
	2551	60.9	54.5	101.1	129.5		7.3	2.0		6.7	5.5	7.0
	2555	63.9	55.2	104.6	127.5		4.3	3.5		5.0	7.5	8.0
	Caldwell	57.6	56.0	102.4	129.3		7.0	1.5		4.3	5.0	4.5
	Cardinal	64.4	55.5	111.0	131.0		5.5	6.0		4.3	7.5	4.0
	Clark	63.7	54.7	101.1	125.8		3.3	5.0		4.3	6.5	7.0
	# loc	12	12	3	2		2	1		2	1	1
1990	**WBB441D1**	**85.4**	**57.2**	**94.7**	**132.5**		**8.9**	**6.0**		**5.8**	**8.0**	
	2548	84.2	58.0	93.5	136.1		6.4	4.0		5.3	3.0	
	2551	73.0	56.4	94.7	136.4		7.9	2.0		4.8	5.0	
	2555	75.0	55.6	96.5	135.9		6.3	4.0		5.3	8.0	
	Caldwell	69.9	58.0	97.3	134.9		8.3	2.0		2.5	5.0	
	Cardinal	80.6	57.7	105.9	137.8		7.6	5.0		3.0	9.0	
	Clark	74.5	57.1	96.0	131.8		4.6	3.0		3.5	9.0	
	# loc	13	8	3	4		4	1		2	1	
1989	**WBB441D1**	**81.0**	**54.9**	**97.3**	**130.6**	**8.0**	**9.0**	**3.5**	**8.8**	**6.8**	**5.2**	**6.5**
	2548	80.0	54.9	96.3	133.7	7.5	8.5	3.5	8.5	7.0	4.5	2.0
	2551	73.5	52.6	99.1	134.3	6.6	8.5	2.5	8.5	6.0	7.1	8.0
	2555	83.0	55.0	101.9	133.4	7.1	8.0	4.0	5.8	5.8	7.1	8.0
	# loc	16	12	4	5	4	1	2	2	2	6	1
												§
2-YR-AVE	**WBB441D1**	**75.5**	**56.6**	**97.3**	**129.4**	–	**9.0**	**6.3**	–	**6.3**	**6.0**	**6.0**
	2548	74.8	57.4	95.0	132.0	–	6.2	5.0	–	6.0	4.0	2.0
	2551	67.0	55.5	97.9	133.0	–	7.6	2.0	–	5.8	5.3	7.5
	2555	69.5	55.4	100.6	131.7	–	5.3	3.8	–	5.2	7.8	8.0
	Caldwell	63.8	57.0	99.8	132.1	–	7.7	1.8	–	3.4	5.0	–
	Cardinal	72.5	56.6	108.5	134.4	–	6.6	5.5	–	3.7	8.3	–
	Clark	69.1	55.9	98.6	128.8	–	4.0	4.0	–	3.9	7.8	–
	# loc	25	20	6	6	–	6	2	–	4	2	2
3-YR-AVE	**WBB441D1**	**77.3**	**56.0**	**97.3**	**129.8**	–	**9.0**	**5.3**	–	**6.4**	**5.7**	–
	2548	76.5	56.5	95.5	132.5	–	7.0	4.5	–	6.3	4.2	–
	2551	69.1	54.5	98.3	133.4	–	7.9	2.2	–	5.8	5.9	–
	2555	74.0	55.3	101.1	132.3	–	6.2	3.8	–	5.4	7.5	–
	# loc	41	32	10	11	–	7	4	–	6	8	–

¶ scale 1 to 9, where 9 = excellent or resistant; 1 = poor or susceptible.
§ data from most recent period of years.
@ Data collected at the University of Illinois SBMV nursery.

1991 Locations: Truxton, MO; Altamont, IL; Carlisle, IN; (2)Windfall, IN; Howe, IN; Ft. Branch, IN; Napoleon, OH; Pitsburg, OH; Bucyrus, OH; Blissfield, MI; Edenton, NC

1990 Locations: Truxton, MO; Altamont, IL; Mascoutah, IL; Carlisle, IN; Westport, IN; (2)Windfall, IN; Howe, IN Ft. Branch, IN; Napoleon, OH; Pitsburg, OH; Bucyrus, OH; Blissfield, MI; Edenton, NC

1989 Locations: Hutchinson, KS; Parsons, KS; Elsberry, MO; Truxton, MO; Altamont, IL; Ogden, IL; Mascoutah, IL; Dahlgren, IL; Jasonville, IN; Vallonia, IN; (2)Windfall, IN; Howe, IN; Ft. Branch, IN; Napoleon, OH; Pitsburg, OH; Lake Odessa, MI, Blissfield, MI; Edenton, NC

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Table 2. Soft wheat quality data 1987-1991 from the Pioneer Quality Lab, Johnston, Iowa.

VARIETY	FLR YLD	BFL YLD	FLR PRO	FLR WR	CK	TOP GRN	TGR AB	MILLING SCORE	BAKING SCORE
'2571' AAA Winter 1993									
~~WBB441D1~~	70.4	37.5	8.9	54.7	19.8	3.4	7.9	6	6
# obs	13	13	13	13	7	7	7		
2548	70.1	36.1	8.4	55.8	19.1	3.4	6.5	5	4
# obs	34	34	34	34	26	26	26		
2551	69.4	34.9	9.2	54.1	19.3	3.7	5.9	4	5
# obs	48	48	48	48	40	40	40		
2555	72.1	40.7	8.4	52.7	20.1	4.6	7.5	8	8
# obs	48	48	48	48	40	40	40		
CALDWELL	72.0	40.9	8.3	54.6	19.8	4.5	7.7	8	7
# obs	9	9	9	9	6	6	6		
CARDINAL	72.7	36.4	9.1	53.5	19.7	3.7	7.8	6	7
# obs	12	12	12	12	6	6	6		
CLARK	69.2	36.5	9.1	54.9	19.5	4.0	8.0	4	6
# obs	7	7	7	7	4	4	4		

Trait abbreviations used in the above table.

FLR YLD -- Flour yield (%)

BFL YLD -- Break flour yield (%)

FLR PRO -- Flour protein (%)

FLR WR -- Flour Alkaline Water Retention Capacity (%)

CK -- Cookie diameter (cm)

TOP GRN -- Top grain rating of cookie (1-9)
(1= poor , 9= excellent)

TGR AB -- Top grain abnormalities of cookie (1-9)
(1= narrow valleys, 9= wide valleys)

MILLING SCORE -- Rating which weights Flour yield 60% and Break flour yield 40% (1= poor, 9= excellent)

BAKING SCORE -- Rating which weights Cookie spread 60% and AWRC 40% (1= poor, 9= excellent)

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14E. Exhibit E. Statement of the Basis of Applicant's Ownership

Pioneer Hi-Bred International, Inc., Plant Breeding Division, believes it is the sole, original, and first breeder of the ~~WBB441D1~~ '2571' AAA 11 Mar 1993 cultivar of soft red winter wheat for which it solicits a certification of protection.